

# **Assessment of Heavy Metals Pollution (Hg, Cr, Cd, Ni) in the Sediments of Mallorquin Lagoon - Barranquilla, Colombia.**

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## **Abstract**

The levels of four toxic heavy metals (Hg; Cr; Cd; Ni) present in 17 sediment samples of the Mallorquin lagoon –Barranquilla (N Colombia) were investigated in order to assessing the potential risks of accumulation. The sample preparation was performed by acid microwave digestion with “Multiwave” system, carried out using GFAAS. High contamination levels, especially for Hg, Cr and Cd, were detected in samples M4 (0.199; 96.71; 1.212  $\mu\text{g.g}^{-1}$ ), M5 (0.153; 100.38; 1.076  $\mu\text{g.g}^{-1}$ ), M6 (0.140; 97.74; 1.850  $\mu\text{g.g}^{-1}$ ), M8 (0.122; 90.41; 1.023  $\mu\text{g.g}^{-1}$ ) y M9 (0.143; 100.92; 1.086  $\mu\text{g.g}^{-1}$ ). The results reflect the anthropogenic activities, as accelerated urbanization without planning, deposit for solid waste, contribution from the Magdalena River, affected by illegal mining. In addition, the Leon stream drains the entire metropolitan area by pouring into the lagoon a great amount of untreated sewage every day. The concentrations found in most samples of the Hg, Cr and Cd elements are above the internationally recommended limits. The levels of metals found are alarming, considering that this lagoon represents a source of food for the population of its surroundings.

## **Keywords**

Ecosystem, mercury, coastal lagoon, Igeo - Index of geo-accumulation.